NOAA Environmental Compliance Assessment System

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Concept of Operations

Section 1
Introduction

1.1 Purpose
The purpose of this document is to define functional aspects of the NOAA Environmental Compliance Assessment System (NECAS).

1.2 Project Scope
NECAS will be the system used to assess environmental, safety, and programmatic compliance at all NOAA facilities, and to track issues identified by assessment. Assessments will be accomplished by a program of audits and surveys. The system is sponsored and managed by NOAA's Environmental Compliance Staff.

1.3 Background
NECAS is envisioned as a comprehensive program to address all aspects of environmental, safety, and management auditing within NOAA. The program scope includes generation and maintenance of NOAA audit policies and procedures, planning and scheduling audits, collecting and archiving audit data, providing access to involved organizations for data review and update, reporting audit results, tracking audit related issues through resolution, and analysis of audit data for planning corrective efforts. The NECAS program will require involvement from all levels of NOAA and its Line/Program Offices (LOs) and will provide multiple benefits to each. Benefits will be achieved because NECAS will make data readily available in a consistent, accessible, structured format. This alone is expected to result in time savings and to preclude duplication of efforts.

NECAS will be a subset of a larger system defined by NOAA's Environmental Compliance Enterprise Architecture System (ECEAS). ECEAS will establish logically organized data sets that may be used by several systems. This way, commonly used data is stored in only one place, ensuring consistency and maximizing resource allocation. For example, NECAS will require facility and personnel data. These data are not the main concern of the audit system, but are necessary for identifying facilities to be audited and identifying points of contact at these facilities. NECAS is just one of several systems that require facility and personnel data.

1.3.1 Reason Behind the NOAA Environmental Assessment System
Environmental and safety regulatory requirements originate from multiple sources. Among these are EPA and OSHA requirements, based on Federal legislation and codified in the Code of Federal Regulations (CFR). Another source is State and Local regulations that may be the same as Federal regulations or more stringent. In addition, the Federal government levies or validates requirements via Executive Orders and initiatives such as the Chief Financial Officers Act and Government Performance and Results Act (GPRA). In an attempt to comply with these regulations, organizations typically develop policies and procedures, and provide personnel training of some sort. These are important steps in developing and maintaining a compliance

program, but feedback is necessary to ensure that the program is effective. A formal assessment program can be an effective method of gaining feedback. Based on assessment results, an organization can gauge the success of its compliance program and direct resources to the areas where needs are greatest. As historical data accumulates, an assessment program can also provide objective measurements of compliance program progress.

1.3.2 Relation to NOAA Mission and Goals

Critical elements in fulfilling NOAA's mission are worker safety, protecting the environment, and complying with environmental and safety regulations. NECAS will provide information essential for critical review of NOAA operations and facilities against regulatory requirements and best management practices.

1.3.3 Relation to NOAA Environmental Compliance Program Mission and Goals

NOAA's Environmental Compliance Program mission mirrors NOAA's mission. Three goals have been established with this mission:

1. Restore contaminated properties caused by NOAA;
2. Ensure environmental compliance through pollution prevention; and
3. Sustain environmental compliance through an environmental management system.

NECAS will contribute to Goals 2 and 3. Opportunities for pollution prevention will likely be identified during conduct of audits, and possibly as a result of surveys. NECAS will be an important part of NOAA's environmental management system by providing insight into the state of field operations. This knowledge will guide priorities and allow informed decisions about future initiatives for improvement.

1.3.4 NOAA Environmental Compliance Assessment System Goals and Objectives

Goals and objectives of NECAS are to provide consistent and simple methods for:

- Development and maintenance of NOAA audit policies, procedures and protocols;
- Planning and scheduling assessments;
- Collecting and archiving assessment data;
- Planning corrective actions;
- Reporting assessment results;
- Providing access to involved organizations for data review, update and analysis; and
- Tracking assessment related issues through resolution.

Section 2
Core Functions

2.0 Introduction

This section will discuss the main (data core) functions of NECAS. Data Core Functions are the tasks NECAS is designed to accomplish based on the requirements (drivers) imposed. Some drivers originate from outside the purview of the NECAS sponsor. These are called external or regulatory drivers. Other drivers, originating from the NECAS sponsor are called internal drivers.

Data Core Functions are developed such that the needs of all intended users (customers) are met. To accomplish intended tasks, a number of data, hardware and software suppliers are necessary, and certain support functions must be available. The relation of these elements of NECAS are graphically represented in Figure 1, the NECAS context diagram.

NECAS has eight core functions, each with multiple steps as indicated in the context diagram. The core functions will be described in following paragraphs with limited discussion of their respective drivers. More comprehensive descriptions of drivers, customers, suppliers and support functions are included in Appendix A.

Core functions will be described in the general order they occur. Appendix B contains a flowchart depicting the entire process as envisioned.

2.1 Planning

Planning functions include the establishment and maintenance of NECAS-related policies and procedures (including criteria for audit/survey frequency), selection or development of audit protocols, determination of facilities due for survey or audit, and finalization of survey and audit lists based on budget and resource availability.

2.1.1 Policies and Procedures

NOAA's Environmental Compliance Staff (ECS) will periodically review policies and procedures internally developed to manage NECAS. These documents are the source of internal drivers for NECAS. Reviews will be conducted annually, at a minimum, at the end of one assessment season or the beginning of another. During these reviews, updates and enhancements will be considered, based on user feedback and initiatives ECS is promoting at the time. The requirement to conduct reviews will be reflected within the policies and procedures themselves.

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NOAA Environmental Compliance Assessment System
Context Diagram

Customers

NOAA	Line/Program Offices	Other Government	Non-Government
Upper Management	Upper Management	DOC	Environmental Organizations
ECS HQ	HQ Env/Saf Staff	GSA	Citizens
ECS RECOs	Regional Env/Saf Reps	EPA	
ASC Safety Reps	Facilities Mgt Group	OSHA	
ASC Facilities Mgt Group	Facility Managers	State & Local Regulators	
Legal Counsel	Facility Env/Saf Reps		
Contractors	Legal Counsel		
	Contractors		

Drivers/Constraints

EPA Rqmts
OSHA Rqmts
State Rqmts
Local Rqmts
Executive Orders
DOC Admin Orders
NOAA Admin Orders
CFO Act
GPRA
Best Mgt Practice

Budget
Resource Availability
Security Issues
Current Initiatives

Data Core Functions

Planning
Policies & Procedures
Protocols
ID Facilities due for audit or survey

Surveys
Gather Data
Complete Survey
Submit Survey

Tracking/Analysis
Status/Progress Updates
Elevate to NOAA Project
Final Resolution Data
Standard & Ad Hoc Queries
Prioritize
Formulate Initiatives
Verify Risk Assessments

Reporting
Standard
Ad Hoc

Preparation
Assign Audit Teams
Notify Facilities
Coordinate Audit Dates
Develop Schedules
Generate/Issue Surveys
Generate/Issue Pre-Audit Questionnaires

Audit
Entrance Brief
Data Verification
Record Findings
Document Immediate Corrective Actions
Assess Program Areas
Exit Brief
Draft/Final audit Reports
Corrective Action Plans

Data Update
Correct Shared Data
Update Based On:
Priorities
Initiatives
Risk

Archiving
Audit Reports
Assessment Data

Suppliers

Requirements
Federal Regulators
State Regulators
Local Regulators
Protocols
DOC
NOAA
CFO Act
GPRA

Data
NOAA ECS HQ
Audit teams
RECOs
ASC Safety Reps
ASC Facilities Mgt Group
LO HQ Env/Saf Staff
LO Regional Env/Saf Reps
LO Facility Managers
LO Facility Env/Saf Reps

Software
COTS
Custom

Hardware
Host Processor
WAN/LAN
Remote Computers
Communication Equipment
CD-ROM Burner
GIS Equipment

Support Functions

System Evaluation & Modification
Maintenance of User & Privilege Data

The ECS currently publishes three policies related to the assessment process. They are:

- NOAA Environmental Compliance Policy 97-01, NOAA Environmental Audit Policy (draft), dated #/#/98;
- NOAA Environmental Compliance Policy 98-02, NOAA Environmental Corrective Action Resolution Policy (draft), dated 5/29/98; and
- NOAA Environmental Compliance Policy 98-04, NOAA's Response to Environmental Regulators Policy (draft), dated 6/25/98.

These policies will be updated and additional policies generated as required.

2.1.2 Protocols

Protocols are assessment tools created by distilling a set of requirements into concise, verifiable requirement statements that are often supported by explanatory notes and suggestions of specific items to consider when determining if a requirement is met. Protocols aid assessors by directing attention to specific issues and by establishing an investigation pattern that is repeatable. Protocols help ensure all aspects of the given requirements are investigated. NECAS protocols will be developed for environmental and safety regulations and guidance documents, and also for various NOAA requirement documents.

The selection or development of protocols is one of a few functions where regulatory and other external drivers influence NECAS. Regulatory drivers include Federal environmental laws established by EPA, health and safety laws established by OSHA, and hazardous material/waste transportation laws established by DOT. Other external drivers include guidance from CEMP and GPRA.

Typical protocol data elements include:

- Protocol Type (environmental, safety, etc.)
- Regulatory Area (e.g., hazardous waste)
- Protocol Question Number (referenced to regulatory area, e.g., HW.62)
- Requirement
- Explanatory Information
- Citation (e.g., 29 CFR 1910.1200(b)(3)(iii))

2.1.3 Identification of Facilities due for Audit or Survey

Facilities will be subject to either audit or survey based on the potential risk the facility represents to NOAA. Tier 1 facilities (higher potential risk) are audited and Tier 2 facilities are surveyed. Risk is determined based on facility type, past assessment results and other trigger events. The criteria for risk determination is described in NOAA's audit policy. At a minimum, risk level will

be reviewed each time a facility is audited or surveyed.

The frequency with which facilities are assessed is similarly tied to potential risk. This arrangement will allow NOAA to develop a list of facilities due for assessment each year. Available budget and other constraints may force NOAA to prioritize the due facilities and assess only a portion. This is envisioned as an iterative process between NOAA's ECS, RECOs, RSMs, and Line Offices (LOs).

Data elements required to support this process include:

- Facility Identification data
- Facility Risk data
- Previous Audit/Survey Dates and results
- Audit/Survey Schedule data (Audit ID, Audit Scope, etc.)

2.2 Preparation

Preparation functions occur after final survey and audit lists are available. NOAA personnel and/or contractors will be tasked with conduct of audits and coordination of surveys. Affected facilities will be notified and facilities to be audited will be contacted to coordinate audit dates. Schedules will be developed. Pre-audit questionnaires will be generated based on latest available data and made available electronically for their respective facilities. Surveys will also be generated and made available.

2.2.1 Assign Audit Teams

NOAA's ECS will assign specific audits to specific groups it designates. These may be NOAA personnel, contractors or combinations thereof. Surveys will be handled by NOAA ECS.

Data elements necessary to support this feature include:

- Unique audit identifier
- Audit type (external, internal, or regulatory)
- Planned audit start and end dates
- Audit scope
- Audit status (planned, delayed, or complete)
- Audit report status
- Facility data (i.e., location)
- Unique audit team identifier and team leader

2.2.2 Notify Facilities

Facilities managers will be officially notified by NOAA ECS of their pending assessment. This will be done electronically and possibly by hardcopy.

Data elements are essentially the same as those listed in section 2.2.1, but will additionally include:

- Station manager e-mail address
- Facility mailing address

2.2.3 Coordinate Audit Dates

Once facilities are notified, audit team leaders will coordinate with facility personnel to coordinate site visit dates, and inform them of the preparations needed to support the audit.

Results of this step may require that planned audit start and end dates be modified.

2.2.4 Develop Schedules

As coordinated audit dates determined, NOAA ECS will develop an audit schedule for the year. This will be posted electronically.

Again the data elements required are those listed in section 2.2.1.

2.2.5 Generate/Issue Surveys

NOAA ECS personnel will use NECAS to generate surveys for those facilities so scheduled. This is envisioned as a semi-automated process that will draw existing facility information and the most recent survey information into a standard survey document that is designed around the selected protocols. The survey documents will then be posted electronically for facilities to respond.

2.2.6 Generate/Issue Pre-Audit Questionnaires

Similarly, audit team leaders will use a similar process to generate and post pre-audit questionnaires for facilities to be audited. These questionnaires will be completed by facility personnel, approved, and posted for review and analysis by the assigned audit team. This data will allow auditors to anticipate areas of greatest interest for the audit.

2.3 Surveys

Surveys differ from audits in that there is no site visit. The survey contains data about the operation of the facility in relation to environmental/safety issues. Each facility being surveyed will access its own survey, update information therein and tag the survey as complete. Survey analysis is discussed in Section 2.5.

2.3.1 Gather Data

Personnel at each facility will gather information necessary to complete the survey. This will include data such as number of satellite accumulation areas, number and size of above ground storage tanks, number of accidents since the last assessment, etc.

2.3.2 Complete Survey

Facility personnel will access their specific survey electronically, verify pre-loaded data, edit incorrect data, and input new data as necessary.

2.3.3 Submit Survey

Once complete and approved by the facility manager, the survey will be posted by the facility for review by NOAA ECS. The following data elements will be present in the survey document:

- Survey data
- Survey Date
- Survey Respondent
- Station Manager
- Survey Approval Date

2.4 Audits

NECAS will track data associated with three types of audits.

External Audit - Audit conducted by NOAA and/or contractor personnel not assigned to the facility under scrutiny

Internal Audit - Audit conducted by personnel at their own facility (self audit)

Regulatory Audit - Audit conducted by Federal, State or local regulatory agencies

Audits typically have three phases; pre-audit, site visit, and post-audit. Pre-audit phase activities for NOAA external audits are performed as part of the Preparation functions described in Section 2.2. Pre-audit phase activities are not applicable for NOAA internal audits because they are conducted by personnel already familiar with the site, nor are they applicable to regulatory audits because regulatory auditors typically show up with little or no warning.

Site visit activities include conduct of an entrance briefing; verification of facility, personnel and staffing data; documentation of audit team members; touring the site; interviewing site personnel; recording finding data; documenting corrective actions taken during the site visit; assessment of program areas; and preparation and conduct of an exit briefing. All site visit activities will be performed during NOAA external audits. Internal audits, by their nature, are less formal and are primarily for the benefit of site personnel. NECAS will support collection of internal audit data but will be liberal concerning what data must be documented. Similarly, regulatory auditors will provide data as they see fit. NECAS will support collection of regulatory audit data as provided.

Audit team post-audit activities include generation and submission of a draft audit report; evaluation and incorporation of draft report comments; and submission of a final audit report. All audit team post-audit activities will be performed for NOAA external audits. NECAS does not support these activities for internal and regulatory audits.

Facility post-audit activities include documentation of immediate corrective actions taken after auditors left the site and development of a corrective action plan for each finding. These activities will be conducted for NOAA external and regulatory audits.

The drivers for audit conduct are found in NOAA Environmental Compliance Policy 97-01, NOAA Environmental Audit Policy (draft).

2.4.1 Entrance Brief

A site visit begins with an entrance briefing with facility personnel. Auditors will make introductions, explain the purpose of the audit, determine the location of records, and schedule interviews. Facility personnel will provide a facility orientation and tour.

Entrance brief data elements include:

- Auditor name
- Auditor address
- Auditor affiliation
- Auditor phone number
- Site visit start date

2.4.2 Data Verification

During the course of the audit, auditors are expected to verify facility data and environmental/ safety representative staffing data resident in NECAS. Any errors or omissions in the base data will be identified via comments for NOAA ECS evaluation and possible update.

Data elements involved with the data verification step include:

Facility Data

- Official facility name
- Facility address
- Line Office affiliation
- Line Office sub-organization
- Facility type
- Servicing Administrative Support Center

Staffing Data

- Name (first, last, mi)
- Employer
- Home facility (some personnel may have environmental/safety responsibilities at facilities besides their normal work locations)
- Normal job title
- Environmental/safety role at the facility

2.4.3 Record Findings

Auditors will develop findings based on review of facility records and documents, personnel interviews, and observations while touring the site. Draft findings will be electronically documented via NECAS.

Data elements related to findings include:

- Finding status (all findings are considered draft until a final audit report is posted)
- Finding type (based on protocol, e.g., environmental, safety, management, etc.)
- Finding number
- Finding class
- Repeat finding (yes/no based on previous assessments)
- Protocol question
- Regulatory area (hazardous waste, water pollution control, etc.)
- Facility point of contact and phone (per finding)
- Location at facility and room number (if applicable)
- Finding description
- Requirement
- Citation
- Notice of Violation (NOV) existence and details
- Recommended solution
- Recommended solution costs
- Image file(s) (digital photographs)

2.4.4 Document Immediate Corrective Actions

Facility personnel may be able to correct or begin to correct some circumstances that resulted in draft findings. Auditors will document these immediate corrective actions to the extent that they are witnessed while still on site. Even if the circumstances are completely corrected before auditors depart, the findings will be retained. These findings offers valuable insight into areas where procedures, training, or management oversight may be lacking.

Data elements related to immediate corrective actions include:

- Description of actions taken
- Status of actions (complete or in progress)
- Person involved in the actions and his/her phone number
- Date of the actions
- Image file(s) (digital photographs)

2.4.5 Assess Program Areas

Auditors will rank the overall effectiveness of the facilities compliance program for each of the regulatory areas within the protocol(s) included in the audit. These rankings will be based on quantitative and qualitative standards defined by NOAA ECS.

Data elements associated with ranking program areas include:

- Protocol name
- Program area
- Program area rank
- Program area rank narrative (explanation of rank assigned)

2.4.6 Exit Brief

At the conclusion of the site visit, auditors will present an exit briefing to facility personnel. The exit briefing will include discussion of draft findings and summary information about the findings. Draft finding sheets and summary data will be provided to facility personnel. Exit briefing attendance will be documented.

Data elements associated with the exit brief include:

- Site visit end date
- Attendee name and phone number
- Attendee affiliation

2.4.7 Draft and Final Audit Reports

Following the site visit, the audit team will prepare a draft audit report using an electronic template in NECAS. The draft report will be posted within 15 days after completion of the site visit. A group of reviewers will access the posted draft report and post comments with 15 days after the draft report was posted. The audit team will incorporate comments to develop the final audit report. The final report will be posted with 15 days after posting of comments, not later than 45 days after the site visit.

Data elements associated with generation of draft and final reports include:

- All data elements

2.4.8 Corrective Action Plans

Facility personnel, in conjunction with their RECO and Line Office will generate a Corrective Action Plan (CAP) for each "significant" or "major" final audit finding. The driver for CAPs is NOAA Environmental Compliance Policy 98-02, NOAA Environmental Corrective Action Resolution Policy (draft). Facilities may sometimes determine that particular "minor" findings do not warrant corrective actions. In these cases, an explanation must be developed and submitted via RECO and Line Office to NOAA ECS for approval and administrative closure of the finding.

Data elements related to CAPs include:

- CAP description and author
- CAP cost
- CAP schedule
- CAP facility reviewer and approval date
- RECO reviewer and approval date

- Line Office reviewer and approval date

Similar data elements will be used for administrative closure candidates but will also include:

- NOAA ECS reviewer and approval date
- Finding resolution date

2.5 Tracking and Analysis

Once findings are identified, NECAS will help track them to resolution. This requires periodic status or progress updates. Some finding resolutions may be beyond a facility's capability. In these cases, a corrective action plan may be submitted to NOAA as a prospective project. NECAS will document these activities until final resolution of a finding is confirmed.

NECAS will assist in the analysis of survey and finding results by providing standard and ad hoc query capabilities and report generation. Criticality and trends will help NOAA determine priorities and allow initiation of endeavors to address the most serious problems.

NECAS will also help verify that a facility's risk level is appropriate to its risk designation and audit/survey frequency. Risk levels may change when operations at the facility change, or as volume and accuracy of data increase. NECAS will support changes to facility designations as appropriate.

2.5.1 Status/Progress Updates

Line Offices will submit an updated status of corrective actions for each open finding under their cognizance at a minimum of once per quarter. This will allow Line Offices and NOAA ECS to execute their oversight responsibility and support the NOAA Quarterly Review.

Data elements associated with status updates include:

- Status description and author
- Expenditures
- Anticipated completion date
- Facility reviewer and approval date
- Line Office reviewer and approval date
- Status date

2.5.2 Elevate Finding to NOAA Project

NECAS will have the ability to allow data entry into the NOAA Project Tracking System. This feature will permit semi-automated entry of a CAP as a project candidate for NOAA ECS review. This step will be a joint effort coordinated between the facility, RECO, and Line Office and will be undertaken only if finding resolution is beyond the capability of the facility and Line Office.

Data elements include:

- CAP data elements

- RECO reviewer and approval date
- Line Office reviewer and approval date
- Other data elements as defined by the NOAA Project Tracking System

2.5.3 Final Resolution Data

When a finding corrective action is complete, final resolution information will be provided and the finding will be closed. Closure will be verified by the cognizant RECO and Line Office.

Data elements include:

- Resolution description and author
- Resolution date
- Resolution cost
- RECO reviewer and approval date
- Line Office reviewer and approval date

2.5.4 Standard and Ad Hoc Queries

NECAS will provide a number of standard queries for audit and survey data analysis. These will be developed based on the most common data needs. In addition, NECAS will provide the capability to create ad hoc queries for unique analyses. NOAA ECS will add new standard queries as required.

2.5.5 Prioritize

NECAS query capabilities will allow NOAA ECS, Line Offices, RECOs and others to identify trends and systemic problems. With this knowledge, informed priorities may be identified.

2.5.6 Formulate Initiatives

At the end of each assessment season, at a minimum, NOAA ECS will compare data and identified priorities to current initiatives. This process may result in new initiatives or changes in funding or emphasis on existing initiatives. This is the culmination of all efforts involving NECAS. Informed program management.

2.5.7 Verify Risk Assessments

As part of the analysis of audit and survey data, NECAS will score each facility against a number of indicators. The resulting score will indicate whether the facility should be considered as Tier 1 (audit faciltiy) or Tier 2 (survey faciltiy). Facilities that score significantly different from the previous assessment will be flagged for review by NOAA ECS. If the score is validated, a facility may me re-classified.

Data elements include:

- Scoring criteria

- Facility Risk data
- Previous Audit/Survey Dates and results

2.6 Data Update

Audit data may include corrections to facility, personnel and staffing data. These corrections will appear as auditor comments as described in section 2.4.2 or as survey comments.

2.6.1 Correct Shared Data

Data will be verified and then corrected via NECAS. The changes will automatically carry through to other systems using the same data.

2.6.2 Update Based on Priorities, Initiatives and Risk

Changes to NOAA priorities, initiatives and risk analysis methodology may require update of certain data in NECAS. These changes will be made by NOAA ECS.

2.7 Reporting

NECAS will provide standard reports to support aspects of other data core functions. These include facility lists, schedules, surveys, pre-audit questionnaires, finding sheets and summaries, audit reports, trend information, NOAA Quarterly Review data, etc. A system of permissions will be used to limit accessibility of data based on user need. Users will be able to generate ad hoc reports based on numerous fields. Typical reports will be based on a facility, region or Line Office, then by finding status, or class, etc..

2.8 Archiving

NECAS will support archiving of audit reports and other assessment data to CD-ROM. Periodically, possibly annually, data in the system will be archived to CD-ROM. This is expected to help control the size of the system and allow historical data to be available as needed

Section 3
Process Descriptions

3.0 Introduction

The majority of this document describes aspects of NECAS as it is envisioned. NECAS is one of many endeavors in a continuing effort to achieve and maintain environmental and safety compliance within NOAA. NECAS is a tool to assess compliance efforts at NOAA facilities, and hopefully validate the evolution of NOAA's compliance efforts. The goal is to achieve and maintain compliance while minimizing budgetary burden and maximizing efficiency. NOAA has been improving and enhancing its compliance assessment process for the last several years. To put the capabilities of NECAS in perspective, the following paragraphs will briefly describe the process of conducting an audit in three different scenarios. A flowchart for the full implementation scenario is included in Appendix B.

NOAA currently uses two tools that impact the following scenarios. The first is a tool to generate, analyze, and document facility surveys. This tool was also used during the 1998 assessment season to generate pre-audit questionnaires for facilities to be audited. The second tool is a standalone audit tool used this year to support auditors during site visits. The audit tool allows verification of certain facility information, provides data entry screens, and generates reports for exit briefings. The first scenario will describe audits prior to introduction of these tools; the second will describe an audit using these tools; and the third will describe use of NECAS as envisioned.

3.1 Historical Scenario

Planning and preparation for audits was performed using spreadsheet data,...need some help from Don Suloff here.....

Several contractors and several NOAA personnel conducted audits. There was little or no coordination between these groups. Audit teams prepared for audits by obtaining and reviewing past hard-copy audit reports. Pre-audit questionnaires were not standardized but efforts towards that end ensued The questionnaires were typically paper-based, but electronic versions were beginning to appear. The scope of audits was originally environmental only, using a Corps of Engineers protocol and then the EPA protocol as a basis. This generally required the transportation of two or three large binders to the audit site for reference. Later audits sometimes included a generic health and safety finding type, but there was no protocol and little guidance on documenting these issues. The site visit was essentially the same as today except no custom tool was available for recording data and preparing exit brief materials. Typically, at the end of an audit, the auditors would compile their notes and prepare a narrative exit report describing areas of concern and potential findings. While time frames for developing draft and final audit reports were established in audit teams' tasking, they were not consistently met. Delays originated not

only in audit team development of reports, but also in the NOAA review cycle. The cause was usually a matter of priorities. In at least one case, the final report was issued two years after the audit was conducted. There was no policy in effect regarding the development of Corrective Action Plans for findings. Draft and final reports were submitted in hard-copy and sometimes in electronic version also, nor was there an established method of elevating long-term or expensive corrective actions to the NOAA level for adoption as a NOAA Project. The NOAA archive of audit reports was paper-based. There was no documented audit frequency scheme based on level of risk represented by operations at a facility. Overall, audits were a labor intensive effort.

3.2 Interim NECAS Scenario

The audit process is still labor intensive, but several improvements have been achieved. These fall into four major categories: standardization, planning, scope expansion, and data collection.

Standardization has been improved significantly through development and update of NOAA policies, use of the survey tool to generate pre-audit questionnaires, and use of the audit tool for audit data entry and reporting. Approved or draft NOAA policies exist for the audit process, development of corrective action plans, and submission of projects. The survey tool allows generation of surveys based on latest submitted data. This allows facility personnel to update rather than start from scratch each time. In addition, the survey may be provided, completed and submitted in electronic format. The audit tool eases some of the data entry effort by automatically loading fields with data that is totally dependent on other entries, preventing some data entry errors by limiting values that are partially dependent on another entry, and generating finding sheets and reports that have the same format and content every time.

Planning for audits and surveys is much more structured than before because NOAA has established criteria for evaluating the compliance risk at each facility. Higher risk facilities (Tier 1) are audited, lower risk facilities (Tier 2) are surveyed. The frequency of audits and surveys is defined by finer breakdown of risk. This process self corrects by re-evaluating risk each time a survey is completed.

Audit scope has expanded to formally include health and safety issues. A safety protocol was compiled this year and is in the process of being validated during the current auditing season. A formal management protocol has not been adopted yet, but the audit tool allows auditors to grade each program or regulatory area during an audit.

Data collection has been enhanced through the use of the survey tool and audit tool. These database applications provide capabilities that did not exist before. Through queries and sorts, data from any number of facilities may be analyzed for trends or compiled for reporting. These capabilities are somewhat limited now, but will be expanded and be refined as needs are defined.

3.3 Fully implemented NECAS Scenario

Evolution of NOAA's assessment program will advance drastically when NECAS is fully implemented. As envisioned, NECAS will automate most of the process and significantly reduce the time and cost of conducting assessments. As the system is developed, the functions of the current survey tool and audit tool will be merged and absorbed into a larger database architecture providing more features and user-transparent seams.

Each year, NECAS will output a list of facilities due for audit and survey. Based on availability of funding, current initiatives, and perceived priorities, NOAA will finalize the list. The list will be posted electronically on ECS's homepage and/or the NOAA WAN. Surveys and pre-audit questionnaire will automatically be generated and posted likewise. Facilities will complete these documents on-line and post them when complete. Auditors will have access to the system for review of pre-audit questionnaires, past audit data, and past reports. Auditors will conduct site visits as before, but will enter draft findings and other data via the site's WAN connection, Internet, or by dial-up connection. There may also be a standalone application for sites where normal connections are not possible. The site visit will be much easier because protocols will be built into NECAS. By entering a protocol question number, NECAS will automatically determine and populate appropriate fields with data. Auditors will use the protocols like questionnaires, thereby ensuring all areas are considered. After the site visit, the audit team will use NECAS to finalize findings and generate a draft report from established templates. The draft report will be posted for review and comment on-line. Comments will be evaluated and accepted or dismissed. At the end of the process NECAS will post the final audit report. Facility personnel, in conjunction with, their RECO and LO personnel, will develop and approve corrective action plans on-line. They will also have the capability to update corrective action status at any time. An option will be provided that will allow users to automatically submit a project prospectus sheet for corrective actions. Standard and ad hoc query and reporting capabilities will be available for users depending on their assigned privileges. These will allow data analysis and compilation of data for various reporting requirements.

In summary, NECAS will help NOAA achieve its goal of minimizing cost while maximizing efficiency. A truly standardized assessment process will exist.

1.1 Drivers

- NOAA Environmental Compliance Policy 97-01, NOAA Environmental Audit Policy (draft), dated #/#/98;

- NOAA Environmental Compliance Policy 98-02, NOAA Environmental Corrective Action Resolution Policy (draft), dated 5/29/98; and

- NOAA Environmental Compliance Policy 98-04, NOAA's Response to Environmental Regulators Policy (draft), dated 6/25/98.

2.1 Customers

Customers are entities that may use or be influenced by data in the system or its operation. NECAS customers are described below.

2.1.1 NOAA Upper Management

NOAA upper management will receive quarterly status of audit findings at the NOAA Quarterly Review. They will also evaluate NOAA's environmental/safety budget, which will be influenced by the number of assessments to be performed each year and by funding needs for corrective actions and other endeavors. NOAA upper management will have the benefit of NECAS as an oversight tool that will help reduce liability.

2.1.2 NOAA Environmental Compliance Staff (Headquarters)

NOAA Environmental Compliance Staff (ECS) will administer NECAS. Headquarters ECS will establish and maintain policies and procedures, perform or contract NECAS support functions, establish audit/survey schedules, assign audit teams, analyze assessment results, hold lessons learned meetings, upgrade NECAS when necessary, etc. They will establish national priorities and use NECAS data when developing environmental/safety budgets for upper management approval.

2.1.3 NOAA Environmental Compliance Staff (Regional Environmental Compliance Officers)

NOAA Regional Environmental Compliance Officers (RECOs), part of NOAA ECS, will assist Headquarters ECS in many ways. RECOs may assist in selection of audit teams, lead audit teams, help facility personnel develop Corrective Action Plans, review draft audit reports, coordinate surveys for their region, etc.

2.1.4 NOAA Administrative Support Center Safety Representatives

NOAA Administrative Support Center (ASC) Safety Representatives will assume an active role in issues that involve occupational safety and health.

2.1.5 NOAA Administrative Support Center Facility Management

NOAA ASC Facility Management groups may become involved in issues that deal with facilities support or facilities management. For example, replacement of a non-compliant ventilation system or asbestos abatement may require coordination with local contractors.

2.1.6 NOAA Legal Counsel

NOAA Legal Counsel is not expected to be a regular user of NECAS. However, NECAS data may be necessary for counsel to address issues with Federal, State or local regulatory officials.

2.1.7 NOAA Contractors

NOAA may contract work activities associated with NECAS. Contractors may serve as audit team members, compile survey data, perform NECAS support functions, or provide other assistance.

2.1.8 Line/Program Office Upper Management

Line/Program Office (LO) upper management will review and report quarterly status of audit findings at the NOAA Quarterly Review. They will also evaluate their respective LO environmental/safety budget, which will be influenced by the number of assessments to be performed each year and by funding needs for corrective actions and other endeavors. LO upper management will have the benefit of NECAS as an oversight tool that will help reduce liability.

2.1.9 Line/Program Office Headquarters Environmental/Safety Staff

LO Headquarters Environmental/Safety Staff personnel will actively use NECAS to track status of finding resolutions. They will work with RECOs, facility personnel to develop Corrective Action Plans, and will coordinate issues across areas of responsibility for their LO. They will establish priorities and use NECAS data when developing environmental/safety budgets for upper management approval. They will approve and prioritize proposed projects for submission to NOAA ECS.

2.1.10 Line/Program Office Regional Environmental/Safety Representatives

LO Regional Environmental/Safety Representatives will assist LO Headquarters Environmental/Safety Staff personnel by coordinating efforts within their region. They may help facility personnel develop Corrective Action Plans and oversee their implementation. They may collect, enter or review finding status updates. They will provide data to support creation of LO environmental/safety budgets. They may assist in development of project prospectus forms for high cost resolution actions.

2.1.11 Line/Program Office Facilities Management Groups

LO Facility Management groups may become involved in issues that deal with facilities support or facilities management. For example, replacement of a non-compliant ventilation system or asbestos abatement may require coordination with local contractors.

2.1.12 Line/Program Office Facility Managers

LO Facility Managers will provide the management emphasis for environmental/safety compliance efforts. They will coordinate with NOAA and/or LO personnel in scheduling and hosting audits. They will ensure that surveys are completed in an accurate and timely manner. They will approve corrective actions as necessary and ensure progress of those actions are reported periodically.

2.1.13 Line/Program Office Facility Environmental/Safety Representatives

LO Facility Environmental/Safety Representatives will serve as focal points when their facility is audited. They will coordinate appropriate personnel and records for the audit team. They will complete surveys when received. They will work with their respective RECO, LO regional coordinator, and LO environmental/safety staff to develop corrective action plans and will implement those actions on-site. They will provide periodic status updates and solicit help when necessary. They will also perform internal (self) audits on a periodic basis.

2.1.14 Line/Program Office Legal Counsel

LO Legal Counsels are not expected to be a regular users of NECAS. However, NECAS data may be necessary for counsels to address issues with Federal, State or local regulatory officials. They will coordinate efforts with NOAA Legal Counsel.

2.1.15 Line/Program Office Contractors

LOs may contract work activities associated with NECAS. Contractors may fill specific environmental/safety roles at facilities or headquarters, may assist in implementation of corrective actions, or may serve as support for LO environmental/safety headquarters personnel.

2.1.16 Department of Commerce

The Department of Commerce (DOC) is not expected to be a users of NECAS. DOC will evaluate NOAA's environmental/safety budget, which will be influenced by the number of assessments to be performed each year and by funding needs for corrective actions and other endeavors. DOC will benefit from the use of NECAS as an oversight tool that will help reduce liability.

2.1.17 Government Services Administration

The Government Services Administration (GSA) is not expected to be a users of NECAS. GSA personnel may become involved in issues that deal with facilities support or facilities management. For example, relocation of facility personnel while asbestos abatement efforts are underway.

2.1.18 United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) is not expected to be a users of NECAS. However, there may be instances where NOAA provides data from NECAS to address EPA endeavors or concerns. In addition, data from all EPA audits at a NOAA facilities will be documented in NECAS.

2.1.19 Occupational Safety and Health Administration

The Occupational Safety and Health Administration (OSHA) is not expected to be a users of NECAS. However, there may be instances where NOAA provides data from NECAS to address OSHA endeavors or concerns. In addition, data from all OSHA audits at a NOAA facilities will be documented in NECAS.

2.1.20 State Regulatory Bodies

State regulatory bodies, such as state EPAs, Departments of Environmental Quality, Departments of Labor, are not expected to be users of NECAS. However, there may be instances where NOAA provides data from NECAS to address their endeavors or concerns. In addition, data from all state regulatory audits at a NOAA facilities will be documented in NECAS.

2.1.21 Non-Government Environmental Organizations

Non-government environmental organizations, such as Greenpeace, are not expected to be users of NECAS. However, there may be instances where NOAA provides data from NECAS to address their endeavors or concerns.

2.1.22 Private Citizens

Private citizens are not expected to be users of NECAS. However, there may be instances where NOAA provides data from NECAS to address their endeavors or concerns.

3.1 Suppliers

Suppliers provide data, products or services required for the system to function as designed.

3.1.1 Requirements

In order to assess compliance, requirements must be integrated into the system. Primary requirements are provided by Federal, State and local regulations and are integrated into NECAS by the use of protocols. NECAS contains an EPA-developed protocol for environmental regulations and a contractor compiled protocol for occupational safety and health requirements. NECAS also contains a protocol for assessment of a facility's environmental/safety management rigor.

In addition to regulatory requirements, administrative requirements imposed by DOC, NOAA, GPRA, the CFO Act, and other initiatives must be taken into account. These are addressed by collection of specific data and formatting of data. These requirements are culled from the following documents:

- Department of Commerce (DOC) Policies
- DOC Administrative Orders (DAOs)
- NOAA Policies
- NOAA Administrative Orders (NAOs)
- NOAA Procedures

3.1.2 Data

Many NECAS customers also supply data to the system.

NOAA Environmental Compliance Staff (Headquarters) staff manage policies, procedures that influence system design, and protocols which are integrated into the system. They also generate data associated with the planning process and manage the update of data as necessary.

Audit Teams provide audit findings, program area assessments and other data collected during audits. They also develop draft and final audit reports.

NOAA ECS (RECOs) may contribute data as part of audit team, may assist with coordination of schedules, and will assist with development of audit finding corrective action plans.

NOAA ASC Safety Representatives may provide data relevant to safety findings/issues.

NOAA ASC Facility Management may provide data relevant to corrective actions at facilities.

LO Environmental/Safety Staff (Headquarters) provide data concerning facilities, personnel and staffing for original population of the system and subsequent updates. They may also be involved in corrective action plan development, status reporting, and audit report comments.

LO Regional Environmental/Safety Representatives may provide data concerning facilities, personnel and staffing for original population of the system and subsequent updates. They may also be involved in corrective action plan development, status reporting, and audit report comments.

LO Facility Managers will coordinate with NOAA and/or LO personnel in scheduling and hosting audits. They will ensure that surveys are completed in an accurate and timely manner. They will approve corrective actions as necessary and ensure progress of those actions are reported periodically.

LO Facility Environmental/Safety Representatives will coordinate appropriate personnel and records for the audit team. They will complete surveys when received. They will work with their respective RECO, LO regional coordinator, and LO environmental/safety staff to develop corrective action plans and will implement those actions on-site. They will provide periodic status updates and solicit help when necessary. They will also perform internal (self) audits on a periodic basis.

3.1.3 Software

A combination of Commercial Off-the-Shelf (COTS) software and custom developed software will be used with NECAS. A COTS Relational Database Management System (RDBMS) application such as Oracle will host a will host custom software developed with a COTS product such as MS Access, Visual Basic, Developer 2000, etc.

3.1.4 Hardware

NECAS hardware will include a central processor to run host and custom software. Equipment associated with Wide and Local Area Networks (WAN/LAN) will be necessary to accommodate the client/server system design. Remote users (clients) will need local computers to access the system. Communication equipment to support the WAN and LAN, as well as, dial-in for non-network users will be necessary. Equipment supporting production of CD-ROMs will be used for data archiving. Eventually, Geographical Information System (GIS) equipment will be used for specifying exact locations for facilities and locations associated with findings and projects.

4.1 Support Functions

Support functions are activities not specifically related to NECAS data handling, but have to do with maintenance of the system.

4.1.1 NECAS Evaluation

At the end of each audit/survey "season", NOAA will evaluate NECAS for usability, identified problems or shortcomings. System corrections and enhancements may result from this effort.

4.1.2 Security

Maintenance of user information and system privileges will be an ongoing effort.